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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,720	02/19/2002	Kaidong Ye	4795-004	5412

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EXAMINER

ELVE, MARIA ALEXANDRA

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,720

Applicant(s)

YE ET AL.

Examiner

M. Alexandra Elve

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-10 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikilla et al. (US Pat. 6,140,606).

Heikilla et al. discloses a laser cutting system having a laser cutting head and a frame which allows the work to be accessed from three different directions. The laser cutting system has a telescopic system that maintains the parameters of the laser beam using auto focusing, and yields optimum cuts. A linear drive is used to move the laser cutting head along various directions such that the workpiece is effectively fabricated. The focus of the laser beam for the different areas of the workpiece may be adjusted by moving the laser cutting head bi-directionally along its vertical axis to maintain respective optimal focal points for workpieces of different materials. Another improvement of the cutting head is the provision of a servomechanism, via feedback, for automatically adjusting the focus lens inside the cutting head. The movement of the cutting head and the laser beam direction are controlled by a CNC. Additionally, a CNC controller may be used to make corrections.

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Heikilla discloses autofocussing and a telescopic system, but does not specifically teach refocusing or vertical movement. It would have been obvious to one of ordinary skill in the art at the time of the invention to realize that a telescopic system involves linear movement towards or away from a workpiece and in this case the movement would be in the vertical direction towards and away from the workpiece. Additionally, autofocussing is inherently a refocusing mechanism and thus is taught by the prior art.

Heikilla does not teach a workpiece which is an integrated circuit. Intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder* 168 USPQ 530.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikilla, as stated in the rejection of claims 9-10 & 16, above and further in view of Manor (US 2001/0035401).

Heikilla discloses the use of a laser for cutting workpieces although the exact wavelengths are not taught.

Manor teaches the use of first and second laser beams in order to cut/scribe lines on a workpiece; a semiconductor wafer. Lasers include UV, CO₂, Nd:YAG and so forth. Wavelengths range from 193 nm to 532 nm. It would have been obvious to one of ordinary skill in the art at the time of the invention to use lasers of different wavelengths as taught by Manor in the Heikilla apparatus because these are merely different varieties of lasers.

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Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikilla, as stated in the rejection of claims 9-10 & 16, above and further in view of Matsumoto et al. (US Pat. 6,498,319).

Heikilla discloses laser cutting but does not teach a fluid flow in the workpiece region.

Matsumo teaches the cutting of sheets for electronic circuit boards. Multiple layers are cut using a laser. The cutting nozzle has a gas attachment, which is used to blow cutting powder and residual away from the workpiece. It would have been obvious to one of ordinary skill in the art at the time of the invention to use gas for blow or cleaning debris, as taught by Matsumo in the Heikilla apparatus because this results in a more precise cut.

Allowable Subject Matter

Claims 1- 8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: the claims as supported by the specification differs from the prior art in that it does not teach a method for cutting a substrate in which a laser beam is focused and laterally moved to follow a path, removing a first layer, in order to reveal a second layer

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and then the beam is refocused and moved along the same path cutting the second material layer.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See US PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 703-308-0092. The examiner can normally be reached on 6:30-3:00 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 703-308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

July 9, 2003.


M. ALEXANDRA ELVE
PRIMARY EXAMINER